

Short Reviews

Modern Methods in Quantitative Chemical Analysis.

By Dr. A. D. Mitchell and Dr. A. M. Ward.
Pp. xi + 178. (London, New York and Toronto :
Longmans, Green and Co., Ltd., 1932.) 6s.

IN this book the authors have, as they clearly explain in their preface, deliberately selected from the large number of new methods available in analytical chemistry, in order to provide, in a conveniently limited space, details of one really sound analytical procedure for each of the substances discussed. They state the principles on which they have made their selections: that methods involving the use of the sintered glass crucible are preferable to those necessarily confined to "Gooch": that the methods should be as little empirical as possible: that they should have a definite bearing on analytical practice: and that they should not involve the use of inaccessible reagents.

After a description of "Some Methods of Wide Application"—methods involving the formation of positive halogen ions, the use of adsorption indicators and oxidation-reduction indicators, oxidation with ceric sulphate, the uses of organic complexes, and the use of the Clemmens Jones 'reductor'—there follow detailed methods for the quantitative estimation of sixty-seven different elements, radicals and compounds. The book has also a table of atomic weights, dilution tables and a full index.

The excellence of the book's general production, as well as the lucidity of all its expository matter and the catholicity of the authors' analytical 'taste', combine to make this a book quite literally indispensable to all engaged in the practice of analytical chemistry. It is much to be hoped that its circulation will warrant the frequent production of new editions and supplements. A. L. B.

Die geologische Erforschung Thüringens in älterer Zeit: ein Beitrag zur Geschichte der Geologie bis zum Jahre 1843. Von Prof. Dr. B. von Freyberg.
Pp. xi + 160 + 8 Tafeln. (Berlin: Gebrüder Borntraeger, 1932.) 7.50 gold marks.

THE variety in the geological formations of Thüringia, and the abundance of minerals and fossils in that part of Germany, led early to the study of its natural features. So long ago as 1710, Buttner published his "Rudera Diluvii testes", which was based on observations in Thüringia; and in 1756 J. G. Lehmann gave a good description of the stratified rocks around Mansfeld, thus producing a pioneer work in stratigraphical geology. In 1761 G. C. Füchsel published a remarkable account of the geology of the country, with new ideas well in advance of the time; while between 1755 and 1773 J. Walch issued the first important large treatise on fossils. In 1820 Baron von Schlotheim's "Petrefaktenkunde" made much advance in the modern study of fossils; and in 1822 K. E. A. von Hoff began the publication of

his classic work on the explanation of geological phenomena by the study of changes now taking place on the earth's surface, which was a precursor of Lyell's "Principles of Geology".

In the new volume now before us, Prof. B. von Freyberg gives an excellent account of these and other achievements of geologists in Thüringia up to the year 1843. It includes a table showing the successive advances in knowledge of the stratigraphy of the country, and is illustrated by several beautiful portraits, of which that of von Hoff will particularly interest English readers.

The History of the Phlogiston Theory. By Dr. J. H. White. Pp. 192. (London: Edward Arnold and Co., 1932.) 6s. net.

THIS little book, originally a thesis for the Ph.D. degree of the University of London, is written, according to the author, to dispel the mists which are gathering around our conception of the phlogiston theory: indeed, definite misstatements with regard to it are becoming increasingly common. In any event, it is useful to have in one book the full story of the wax and wane of the theory through a century of chemical history. At the outset of the eighteenth century, alchemy was flourishing and the philosopher's stone was still eagerly sought. By the end of it, quantitative chemistry had begun, chemical combination was being understood: chemistry had advanced in spite of the phlogiston theory, the work of Lavoisier had overthrown the doctrine of Stahl.

Dr. White divides his book into a dozen chapters and gives a number of references; he has been to the original material in the British Museum Library. He ends, as is proper, with some definite conclusions, of which perhaps one of the most significant is that the phlogiston theory did little to stimulate research. This must always be the prime object of any theory; even if a hypothesis be proved to be wrong, it will not have been made in vain so long as it has been productive of experimental work. We regard the essay as a useful and a fruitful one, which will repay perusal by serious students and others interested in the past of chemical science.

Die gruppentheoretische Methode in der Quantenmechanik. Von Prof. Dr. B. L. van der Waerden. (Die Grundlehren der mathematischen Wissenschaften in Einzeldarstellungen mit besonderer Berücksichtigung der Anwendungsgebiete, herausgegeben von R. Courant, Band 36.) Pp. viii + 157. (Berlin: Julius Springer, 1932.) 9.90 gold marks.

THE difficulties of group theory are no doubt considerable, but here is a book of reasonable size which gives a fairly elementary account of the application of the theory to quantum mechanical problems. It is now well known that Schrödinger's